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IS 7960-1 (1976): Code of Practice for Packaging Machine Tools, Part I: For Overseas Shipment [TED 24: Transport Packages]



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(Reaffirmed 2000)

IS : 7960 (Part I) - 1976

Indian Standard "पुनर्पठ १९९५"
"RE-AFFIRMED 1995"

**CODE OF PRACTICE FOR PACKAGING
MACHINE TOOLS**

PART I FOR OVERSEAS SHIPMENT

(First Reprint JUNE 1983)

UDC 621.798.017.6 : 621.9



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INDIAN STANDARDS INSTITUTION
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NEW DELHI 110002

*Indian Standard***CODE OF PRACTICE FOR PACKAGING
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CODE OF PRACTICE FOR PACKAGING MACHINE TOOLS

PART I FOR OVERSEAS SHIPMENT

0. FOREWORD

0.1 This Indian Standard (Part I) was adopted by the Indian Standards Institution on 30 January 1976, after the draft finalized by the Engineering Goods Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 With the concerted efforts of the Government of India to boost up its export earnings the list of non-traditional items being exported not only to the developing countries of Asian and African continents but also to the developed countries of Europe and America has grown manifold. Machine tools in the recent past constituted the major portion of the engineering goods being exported from this country. The packaging of these items is as important as the quality of the product. This code of practice is being prepared to ensure that the machine tools transported by rail, road and ship or a combination of these modes reaches the importing country in a safe condition.

0.3 A code of practice for packaging of machine tools for transportation within the country will be covered in Part II of this standard.

1. SCOPE

1.1 This standard (Part I) covers the requirements of packaging of machine tools weighing not more than 8 000 kg for overseas shipment.

1.1.1 This code does not include the requirements for air transport.

2. TERMINOLOGY

2.0 For the purpose of this standard, the terms given in IS : 707-1968* and IS : 6703-1972†, in addition to the following, shall apply.

2.1 Objectionable Knot

2.1.1 A live knot shall be considered objectionable if its diameter along the major axis exceeds 50 percent of the width of a plank subject to a

*Glossary of terms applicable to timber and timber products (*first revision*).

†Glossary of wooden packaging terms.

maximum of 75 mm provided such knots are not so numerous or grouped or located as to affect the strength of the planks or are situated within 25 mm from a place through which a nail will be driven either in the shook or when the case is assembled.

2.1.2 A dead knot shall be considered objectionable if its diameter along the major axis exceeds 6 mm in the case of unplugged knot or 25 mm in the case of a glued and plugged knot, provided such knots are not so numerous or grouped or located as to affect the strength of the planks or are situated within 25 mm from a place through which a nail will be driven either in the shock or when the case is assembled.

2.2 Overseas Shipment — Despatch of machine tools from India to any other country by sea.

3. PROTECTION AGAINST RUST AND MECHANICAL DAMAGE

3.1 All machined surface and parts not painted and which are exposed to atmosphere shall be protected against rust with a coat of rust preventive conforming to IS : 1153-1957* as agreed to between the purchaser and the supplier.

3.2 The following procedure shall be adopted for treating the machine with rust preventives.

3.2.1 The surfaces and parts requiring rust protection shall be cleaned thoroughly with kerosine.

3.2.2 Excess of kerosine, if any, shall be removed by wiping off with a piece of cloth.

3.2.3 Any visible rust formed earlier on the surfaces and parts shall be removed with a rust removing compound. The surfaces and parts shall be cleaned with kerosine and excess of kerosine, if any, shall be removed by wiping off with a piece of cloth.

3.2.4 The cleaned surfaces shall not have any dirt, moisture and fingerprints.

3.2.5 Before applying the rust preventive, the container of the rust preventive shall be shaken well.

3.2.6 One coat of rust preventive shall be applied on all surfaces and parts by means of brush.

3.2.6.1 Different types and sizes of brushes shall be chosen to suit different types and sizes of surfaces or parts.

3.2.6.2 The coating shall be uniform throughout.

3.2.6.3 In case of sliding components like dovetails, slides, etc, special care shall be taken to see that both the mating surfaces are completely coated with the rust preventive. To achieve this, the sliding component shall be

*Specification for temporary corrosion preventive fluid hard film, solvent deposited.

moved to one extreme end and the exposed surfaces shall be coated with the rust preventive. The sliding component shall then be moved to the other extreme end and the exposed surfaces shall be coated with the rust preventive.

3.2.7 Headstock, gear boxes, etc, shall be run for about 30 minutes with 1 : 1 hydraulic circulating oil and hard film protective coating so as to form a protective layer on all running components.

3.2.8 Machined surfaces of all accessories like attachments, tools, etc, shall also be coated with the rust preventive and they shall be wrapped in waxed paper or oil soaked paper. The paper shall be free from acidity.

3.2.9 A second coat of rust preventive shall be applied on all machined surfaces and parts after the first coat has set in.

3.2.10 The container of the rust preventive shall not be kept open. The rust preventive shall not be diluted.

3.2.11 Packing shall be done only after the coating has dried. All care shall be taken to prevent any damage or scratch occurring on the protective coating.

4. METHOD OF PACKING

4.1 All loose parts or accessories shall be coated with rust preventive and separately wrapped in waxed or oil soaked paper and may be suitably encased in cartons or wooden boxes. These boxes shall be secured firmly to the base of the main package by railing or through strappings in case of lighter packages.

4.2 Place inside the polyethylene cover (*see* 4.3) the required quantity of suitable desiccator such as silicagel contained in bags to absorb moisture (*see* Note).

NOTE — Generally a minimum of 0.7 kg of silicagel is required for a metre cube of package volume.

4.3 The machine tool shall be covered with a polyethylene sheet of suitable thickness and sealed suitably so that outside air is controlled to the maximum extent.

4.4 The machine tool so prepared shall be packed in packing case, the requirements of which are given in 5.

5. PACKING CASE AND FASTENERS

5.1 Materials

5.1.1 Timber — The timber used for the packing cases shall be reasonably straight-grained and free from insect attack, fungus growth, any kind of decay, objectionable knots, splits, warping and any other defects. Knot-holes are to be plugged before the construction of the case. Timber species

prescribed in Group I of Appendix A of IS : 6662-1972* are recommended to be used for such packing cases.

5.1.1.1 The timber shall be well seasoned and the moisture content shall be within 12 to 18 percent.

5.1.1.2 All timbers of nondurable species and all timbers carrying sapwood of durable species shall be given preservative treatment as agreed to between the purchaser and the supplier. The treatment shall generally conform to IS : 401-1967†.

5.1.2 Fasteners

5.1.2.1 Nails — Nails used for assembling the case shall conform to IS : 723-1972‡. The length of the nails shall be not less than three times the thickness of the plank through which it is driven.

5.1.2.2 Bolts and nuts — The bolts and nuts shall conform to IS : 2585-1968§. Coach bolts shall conform to IS : 2609-1972||.

5.1.2.3 Washers — Square washers shall conform to IS : 5373-1969#.

5.1.2.4 Tarfelt and waterproof paper — The tarfelt shall conform to IS : 1322-1970** and bitumen-laminated waterproof paper shall conform to IS : 1398-1968††.

5.2 Construction of Case

5.2.1 The construction of the packing case shall be such that it gives proper support to the sides, top and bottom. The case shall be rigid and capable of being towed at the bottom and of being slung or hooked or stacked one above the other without any damage. Adequate safety space shall be provided between the case sides and the machine. Wherever necessary, the case shall have provision at the bottom for handling by forklift trucks. A sling spacing of 50 to 80 mm thickness shall be nailed under each bottom beam. These strips shall be shorter than the base of the machine and serve as a stop against which the slinging ropes butt. These strips also ensure that the slings can be slipped — easily under the case. Typical examples of construction of packing cases are illustrated in Fig. 1.

5.2.2 Thickness of the bottom, top, side and end planks, the section and the number of frame members and those of bottom beams and their arrangements shall depend upon the weight and width of the machine. It may be noted that the sizes of members given in Table 1 are only recommendatory.

*Specification for timber species suitable for wooden packaging.

†Code of practice for preservation of timber (second revision).

‡Specification for steel countersunk head wire nails (first revision).

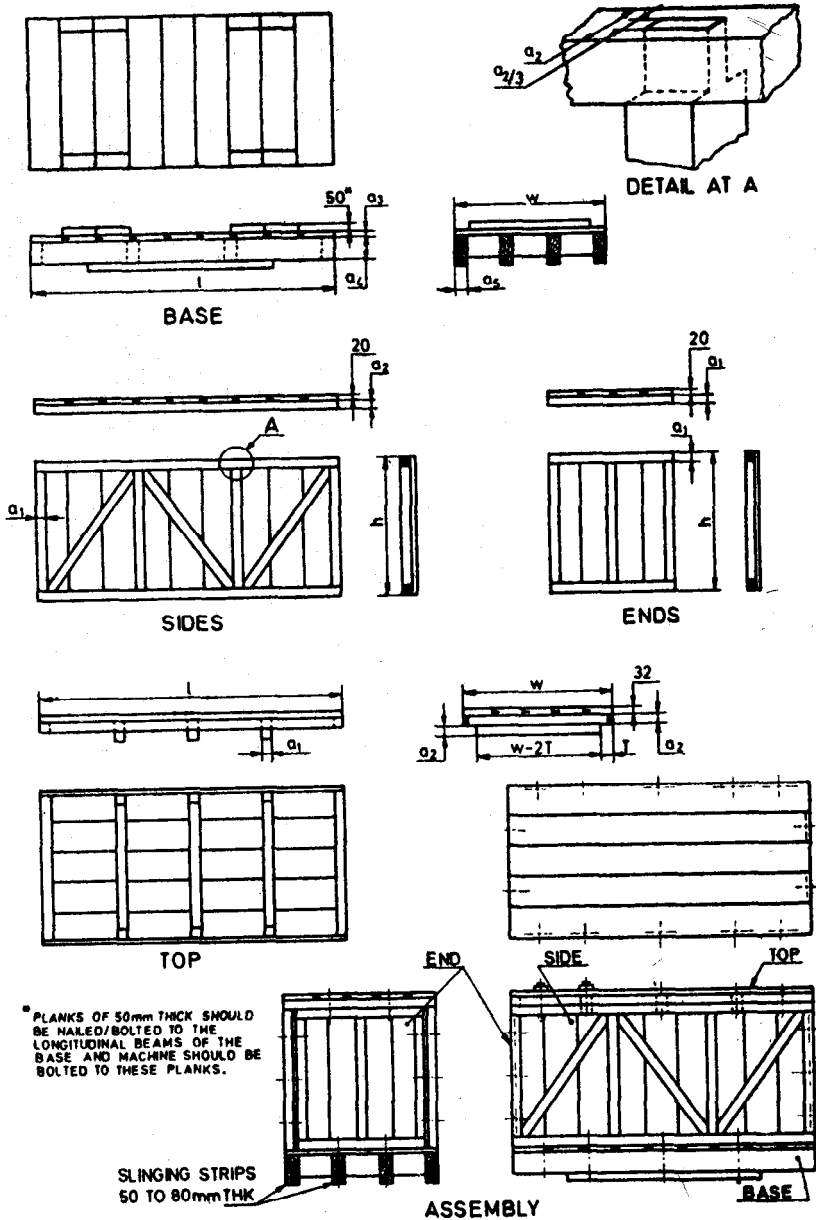
§Specification for black square bolts and nuts (diameter range 6 to 39 mm) and black square screws (diameter range 6 to 24 mm) (first revision).

||Specification for coach bolts (first revision).

#Specification for square washers for wood fastenings.

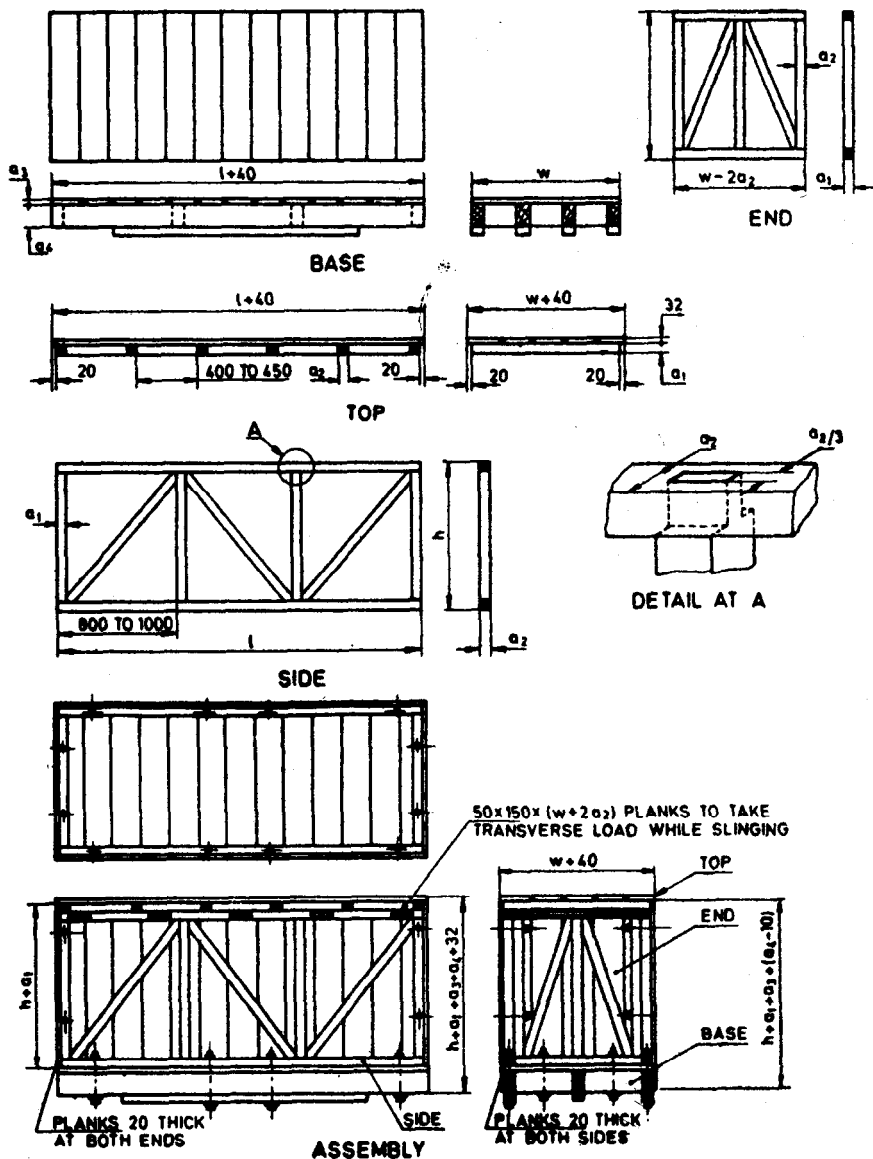
**Specification for bitumen felts for waterproofing and damp-proofing (second revision).

††Specification for packing paper, waterproof, bitumen-laminated (first revision).



All dimensions in millimetres.

FIG. 1 TYPICAL CONSTRUCTIONAL DETAILS OF PACKING CASES—Contd.



All dimensions in millimetres.

FIG. 1 TYPICAL CONSTRUCTIONAL DETAILS OF PACKING CASES

TABLE 1 SIZES OF MEMBERS

(Clause 5.2.2, and FIG. 1)

FOR M/C WEIGHING, kg		a_1	a_2	a_3	a_4	a_5
Over	Up to					
—	1 500	60	40	25	100	75
1 500	2 500	60	40	32	100	75
2 500	5 000	60	60	32	150	75
5 000	8 000	100	75	40	150	75

NOTE — Additional battens of suitable sizes, vertical/horizontal should be provided where more load is concentrated.

5.2.3 The grain of the timber shall be along the length of the plank. No plank used in the packing case shall be less than 75 mm in width.

5.2.4 The end, side and top shooks shall be unit constructed, that is, each built on its own frame.

5.2.5 The planks shall be either butted and secured or grooved on one edge and tongued on the other edge. The width and depth of grooves for the joints shall be as follows:

Width: between one-quarter and one-third the thickness

Depth: one-half the thickness of the plank.

5.2.5.1 As an alternate, the lap joint may be used, the width and depth of the lap joint shall be half the thickness of the plank.

5.2.5.2 During assembly the planks shall be matched and the tongues properly fitted into the grooves.

5.2.5.3 The bottom and the four side shooks shall be lined from inside with strong bitumenised waterproof paper and any joint in the bitumenised paper shall be made with bitumen.

5.2.6 When the machine is bolted to the base, the side and end shooks shall be nailed or bolted together and to the base and they shall not be screwed.

5.2.7 If necessary the corners of the case shall be strengthened with strip iron angle.

5.2.8 The top cover shall be lined with galvanized iron sheet of thickness 0.3 mm or of a suitable alternate material like tarfelt. The size of sheet shall be 150 mm longer on all sides than the top cover and the projecting portion of the sheet shall be bent down after the top cover is nailed or bolted to the side and end panels.

6. MARKING

6.1 In addition to the markings required by the importer the following particulars may be stencilled or stamped on the packing case:

- a) Overall dimensions of the case,
- b) Gross mass of the case,
- c) Port of entry,
- d) Name and address of the exporter, and
- e) Necessary shipping marks.

6.1.1 The case shall be marked with the pictorial markings for handling of goods according to IS : 1260 (Part II)-1973*.

*Pictorial markings for handling and labelling of goods: Part II General goods.